

REMARKS

This Amendment is filed in response to the non-final Office Action of September 1, 2010 in which claims 1-23 were rejected. After the above amendment, claims 1-4, 7-15, 17-20 and 22-41 are pending. Claims 1, 17-20, and 22-24 are independent.

I. Amended claims

The following amendments have been performed to the claims:

- Independent claim 1 has been amended by incorporating the features of claims 5 and 6. Furthermore, the preamble has been shortened by partially cancelling features and by partially moving these features into the body of the claim. In particular, the feature that the at least one media stream is a continuous media stream, that the streaming is controlled by a protocol, and that the streaming quality is reported from a client to a server have been cancelled, since these features are apparently not essential for the present invention.
- Dependent claims 5 and 6 have been cancelled accordingly.
- Dependent claims 2-4 and 7-15 have been adapted to the changes in claim 1. Furthermore, claims 9 and 11 have been slightly reworded based on their original disclosure.
- Independent computer program claim 16 has been cancelled.
- Independent claim 17 has been recast as required by the Examiner. Further amendments in independent claim 17 correspond to the amendments performed in independent claim 1.
- The amendments in independent claims 18-20 and 22-23 correspond to the amendments in independent claim 1. Furthermore, server and client claims 19 and 20, respectively, have been amended to apparatus claims and the means for receiving and for reporting have been specified to be a receiver and a transmitter, respectively.
- Independent protocol claim 21 has been cancelled.
- New independent method claim 24 has been added based on the disclosure of independent claim 1.

- A set of new dependent apparatus claims 25-36 has been added referring back to independent apparatus claim 19. A basis for these dependent apparatus claims are dependent method claims 2-4 and 7-15.
- New dependent claims 37-41 contain the features removed from the independent claims as indicated above.

II. Formal claim objections

Claims 16 and 21 have been cancelled; and claim 17 has been recast as required by the Examiner. Thus, Applicant considers the objections raised in items 2 and 7 of the Office Action to be overcome.

With respect to items 4 and 5 of the Office Action, claims 9 and 11 have been slightly reworded to overcome the objections raised by the Examiner. In particular, the word “its” has been cancelled to clarify the claim language and to unambiguously express that neither “prediction reference samples” nor “concealed parts” have been mentioned prior to one of the claims 9 and 11.

III. Prior art

Seckin relates to a Quality of Experience (QoE) framework providing a technique to assess the end user experience in a mobile wireless communication environment, such as 2.5G or 3G networks, or in any other wireless or hardwired communication environment. The framework is usable in conjunction with media streaming applications and enables a combination of network layer, transport layer, codec layer, and application layer measurements in extracting results. The extracted results can be used to monitor and improve, if necessary, the end user experience over severely variable network conditions.

However, *Seckin* has been filed on August 23, 2004 after the international filing date (February 12, 2004) of the present patent application and, thus, the subject matter of *Seckin* relied upon by the Examiner can only be considered to be prior art, if it is already disclosed in the two provisional applications the priorities of which (August 21, 2003 and January 26, 2004) are claimed by *Seckin*. In the following, the older provisional

application is referred to as P1 and the younger provisional application is referred to as P2.

P1: Seckin's first Provisional Application No. 60/497,447 (Express Mail No. EV336616129US) filed August 21, 2003

P1 is a collection of documents that relate to streaming quality metrics (sqm). Inter alia, Tdoc S4-030562 is contained therein, which apparently is a predecessor of Tdoc S4-030860 already mentioned in the present patent application and disclosed in the IDS filed upon the present application entering the U.S. National Stage.

P2: Seckin's second Provisional Application No. 60/539,536 (Express Mail No. EV336591841US) filed January 26, 2004

P2 also relates to the PSS QoE metrics service. It lists a couple of QoE metrics and mainly describes the process of metrics initiation/termination with SDP/RTSP and sending metrics with RTSP. *P2* appears to be a reworded version of Tdoc S4-030860 (see for instance the Examples which are only slightly renumbered in *P2* and the Figures).

US 2004/0139088 (Mandato et al)

Mandato et al relates to a framework for achieving dynamic End-to End QoS negotiation and control coordination, with distributed multimedia applications. The framework builds upon dynamic capability negotiations and specification of Adaptation Paths and (alternative) QoS Contracts, based on user preferences. In particular a protocol providing End-to-End negotiation of alternative QoS, capabilities, and preferences/configurations, based on extensions of IP based protocols like SIP/RTSP/SDP, in coordination with mechanisms for network resource reservation (e.g. RSVP), local terminal resource (e.g. CPU, memory, power, auxiliary devices) reservation, and adaptation mechanisms is presented. To this extent, and with respect to two or more peers *Mandato* identifies six phases, through which said peers can establish multiparty, multi-stream, multimedia communications.

IV. Subject matter of the Invention

The present invention relates to methods, a system and apparatuses for reporting/receiving a streaming quality in a streaming system (e.g. a streaming system supporting the 3G Packet-switched Streaming Service, PSS).

A quality of a streaming of at least one media stream is reported based on at least one selected quality metric (e.g. a corruption duration). The at least one selected quality metric is a quality of experience metric that is at least partially based on a decision whether at least one frame of the at least one media stream is a “good frame.”

According to the prior art, different streaming clients may report different streaming qualities in this case, because for the same quality metric (e.g. corruption duration), different definitions of a “good frame” may be applied. This ambiguity caused the reported quality metrics to be imprecise and effectively worthless.

However, the present invention, firstly, identifies this ambiguity; and, in order to remove this ambiguity arising from different definitions of a “good frame,” it proposes that the reporting of the quality of the streaming is further based on a selected quality metrics class, which is selected from a pre-defined set of at least two quality metrics classes. Each quality metrics class in the pre-defined set of at least two quality metrics classes defines a different set of rules on how to decide whether a frame of the at least one media stream is a “good frame.”

Thus, in contrast to the prior art, the present invention allows a concise reporting of a streaming quality. The three methods (i.e. quality metrics classes) exemplarily proposed in the present patent application (see pp. 22-24) to judge whether or not a frame is a “good frame,” clearly illustrate that there are quite different definitions of a “good frame” applicable. For instance, if a corruption duration, which, inter alia, depends on the decision whether frames of a media stream are good frames or corrupted frames, is selected as a quality metric, this quality metric can be further specified by the selection of one specific quality metric class, which provides an unambiguous definition of a “good frame.” Furthermore, the use of more than one quality metrics class provides an additional degree of freedom in the definition of quality metrics, because it allows an

adaption of the scope of a specific quality metric by selecting one specific quality metrics class.

V. Novelty and Inventiveness of the amended independent claims

Presently amended independent claims incorporate the subject matter of previous claim 1, 5 and 6. In the Office Action, the Examiner considered previous claim 1 and 5 to be anticipated by *Seckin* and previous claim 6 to be rendered obvious by a combination of *Seckin* and *Mandato*.

As set out above, *Seckin* has been filed after the international filing date of the present invention and, thus, only the disclosure of P1 and P2 is discussed in the following.

Neither P1 nor P2 disclose the subject matter of the previous claim 1 requiring that the reporting of the quality of the streaming is based on a selected quality metrics class, wherein the selected quality metrics class is selected from a pre-defined set of at least two quality metrics classes, and the subject matter of previous claim 6 further requiring that each quality metrics class in the pre-defined set of at least two quality metrics classes defines a different set of rules on how to decide whether a frame of the at least one media stream is a good frame.

P1 only provides general definitions of media quality metrics (see for instance sections 5.1 of Tdoc S4-030562), but does not propose different quality metrics classes with respectively different sets of rules on how to decide on a good frame. There is not even one definition of a “good frame” provided.

In addition to the disclosure of P1, the P2 document provides one general definition of what is understood as a “good frame” (see bridging paragraph, p.5-6), but does also not propose different quality metrics classes with respectively different set of rules on how to decide on a good frame. In this respect, Applicant respectfully submits that the one definition of a “good frame” provided in P2 appears to correspond to the definition provided in section 5.1 of Tdoc S4-030860, which is also referred to in the present patent application.

Therefore, *Seckin* cannot be considered to anticipate the subject matter of previous claims 1 and 6, respectively, requiring that the reporting of the quality of the

streaming is further based on a selected quality metrics class, wherein the selected quality metrics class is selected from a pre-defined set of at least two quality metrics classes, and that each quality metrics class in the pre-defined set of at least two quality metrics classes defines a different set of rules on how to decide whether a frame of the at least one media stream is a good frame.

Mandato proposes a concept providing Quality of Service (QoS, i.e. the collective effect of service performance which determines the degree of satisfaction of a user of the service) guarantees in an effective manner (see paragraph [0068]). The idea of *Mandato* (see paragraph [0092]) "... is to have peers negotiating beforehand (i.e. before the actual communication takes place) a common level of QoS, the use of which peers can agree upon. This is a form of pre-negotiation of a vocabulary which peers can use later on for efficiently dealing with contingent negotiations (e.g. when establishing audio/video streams) or re-negotiations (changing the QoS Contract during ongoing sessions). The benefit of this approach is that the time necessary for re-negotiation is reduced because the peers have only to refer to a negotiated state instead of performing a full negotiation cycle during streaming. Furthermore, the type of negotiation can be tailored based on capabilities that are currently available at all peers."

According to the present invention, the quality of a streaming is reported based on a selected quality metric. However, *Mandato* only pertains to the negotiation of QoS (e.g. QoS of a video streaming session), but does not specify how violations of the negotiated QoS are controlled and reported. A quality report according to the present invention may, for instance, indicate that a QoS negotiated according to *Mandato* may be violated and an according re-negotiation of the QoS may take place.

Mandato neither discloses that a quality of a streaming is reported based on a selected quality metric nor does it relate to quality metrics classes at all. Therefore, *Mandato* can also not be considered to anticipate the subject matter of previous claims 1 and 6.

A first achievement of the present invention is to identify that there is an ambiguity arising from different definitions of a "good frame" in the prior art and a second achievement is the proposal to use quality metrics classes defining a specific set of rules on how to decide whether or not a frame is a "good frame," in order to remove

this ambiguity. The use of more than one quality metrics class, wherein each quality metrics class provides a different set of such rules, is also advantageous, because it allows an adaption of the scope of a specific quality metric by selecting one specific quality metrics class.

Applicant respectfully submits that none of the cited prior art documents even identify that there is an ambiguity arising from different definitions of a “good frame” and, thus, it is not apparent at all that this prior art documents may anticipate or render obvious the present invention, which proposes the use of quality metrics classes in order to remove this ambiguity.

For the above reasons, *Mandato*, *Seckin* or a combination thereof neither anticipate nor render obvious the presently claimed subject matter and, therefore Applicant respectfully requests the Examiner to withdraw the novelty rejection in section 9 and the obviousness rejections in sections 19 and 31 for at least the same reasons and to indicate the amended independent claims to be allowable.

The objections and rejections of the Office Action of September 1, 2010, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested and passage of claims 1-4, 7-15, 17-20, and 22-41 to issue is earnestly solicited.

Respectfully submitted,

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